UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

To: Adam Loney, CRA

From: Leslie Patterson, EPA

Subject: South Dayton Dump & Landfill Superfund Site
Revised DQO Summary submitted November 20, 2012, and Conceptual Site Model, submitted December 5, 2012

Date: December 21, 2012

I have reviewed the revised DQO summary, and in consultation with Ohio EPA, there are two areas in which I would like to confirm agreement between EPA and the PRP group. Revising the DQO table prior to submitting the workplan for this investigation is not necessary, but further discussion on the following issues is warranted to ensure that the workplan meets EPA's expectations:

1. Inclusion of a problem statement concerning the containment of landfill/soil gas and its associated groundwater sources;

2. Adequacy of the proposed activities to collect all groundwater data needed for selecting a containment remedy.

These issues are discussed in more detail below:

1. The final containment remedy must address any off-Site migration of groundwater exceeding MCLs and risk-based action levels for ingestion and direct contact, and also groundwater that has the potential to be a source for vapor intrusion in nearby buildings not already scheduled for mitigation in the removal action. However, it is not clear to the reader that the DQOs will address groundwater that exceeds contaminant levels for the vapor intrusion pathway, as calculated using EPA's RSLs for inhalation and according to the method in EPA-approved guidance. The action levels specified in Step 3.iii list RSLs, which could be interpreted as RSLs for tapwater, or RSLs for inhalation on which groundwater action levels are calculated. The use of RSLs incorporates both 10^{-6} cumulative lifetime cancer risk and a Hazard Index >1. I recommend the following language in Step 3.iii:

   Groundwater Action Levels as agreed with USEPA are:
   1) USEPA MCLs
   2) EPA RSLs for tapwater
   3) Concentrations calculated from EPA RSLs for gas inhalation according to the method in EPA-approved guidance.

   Respondents will evaluate the analytical results against MCLs where available. Where MCLs are not available, RSLs for tapwater will be compared to the individual

contaminant concentrations for screening purposes. Volatile contaminant levels will also be compared to groundwater action levels calculated from EPA's RSLs for inhalation.

2. It is unclear how investigating the data gaps listed in Step 1.i, Phase 1A, and shown in Figure 2 of the CSM, will adequately address the "groundwater migration data gap" as shown in Figure 1 of the CSM. As raised in EPA's third comment on the draft DQOs sent on November 2, 2012, meeting the stated objective of determining whether contaminated groundwater has the potential to move off-Site may also require groundwater sampling in areas other than those listed. Areas of the landfill with low density of groundwater data are also data gaps that should be identified and explored with the Geoprobe in Phase 1A and potentially VAS borings in Phase 2A.

Specific comments on DQO summary

These issues are should also be resolved prior to finalizing the workplan.

Step 2.ii, Alternate outcomes or actions, General
The DQOs only provide for sampling groundwater, which will not be sufficient to distinguish between the alternate outcomes i and ii listed in Step 2.ii. If one or more source(s) of groundwater contamination is identified (outcome ii in Step 2.ii), the decision on whether it is preferable to remediate the source(s) is a separate problem statement with its own data needs. It is unclear if additional DQOs and a workplan for source characterization are envisioned.

Step 2.ii, Alternate outcomes or actions, Phase 2A
The use of a 100-foot distance derives from EPA's vapor intrusion guidance, yet it seems here also to be applied to groundwater contamination as defined by ingestion pathway. If that is so, it is not an appropriate application. Determining whether additional information is needed depends on several factors including plume stability and local hydrology.

Steps 2.iv.a and 5.ii.a
The use of "maximum contaminant value" is confusing because all values that exceed action levels are of interest, as well as their distribution. I recommend replacing this phrase with "exceedances" in Step 2.iv.a. I also recommend the following language in Step 5.ii.a, with the Phase 2 language in square brackets:

> All exceedances of action levels (for protection of any point within aquifer), [or action level exceedances on-Site vs. upgradient.]

Step 6, Specify performance or acceptance criteria
Evaluating whether groundwater contamination is migrating or has the potential to migrate off-Site, and evaluating containment/remediation alternatives, requires understanding whether contaminant plumes are stable, shrinking, or advancing toward a Site boundary, as well as comparing contaminant levels to action levels. The DQOs do not seem to provide for evaluating concentration trends or the temporal aspect of plume behavior.

Step 6.iii, Specify "gray region" for test

The grey region is where the consequences of a false negative decision error are relatively minor. If the sample set is large enough and can be normalized, relying on one standard deviation could work. But if upgradient samples are highly variable, the standard deviation may be very large, leading to greater possibility of a false negative. Other tests—the t-test, for example—may be more useful and further discussion on this point is needed. Please see the March 2009 Unified Guidance, "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities" found at: http://www.epa.gov/osw/hazard/correctiveaction/resources/guidance/sitechar/gwstats/

Comments on Conceptual Site Model

1. Developing the CSM to depict what is known about groundwater contamination is needed in order to identify any additional groundwater data gaps. It would be useful to have a figure depicting the locations and depths where groundwater data are available, similar to Figure 3.

2. Receptors need to be incorporated into the CSM.